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Abstract of the Disclosure

A general purpose, programmable media processor for processing and transmitting a media data stream of audio, video, radio, graphics, encryption, authentication, and networking information in real-time. The media processor

5   incorporates an execution unit that maintains substantially peak data throughout of media data streams. The execution unit includes a dynamically partionable multi-precision arithmetic unit, programmable switch and programmable extended mathematical element. A high bandwidth external interface supplies media data streams at substantially peak rates to a general purpose register file and the multi-

10   precision execution unit. A memory management unit, and instruction and data cache/buffers are also provided. High bandwidth memory controllers are linked in series to provide a memory channel to the general purpose, programmable media processor. The general purpose, programmable media processor is disposed in a network fabric consisting of fiber optic cable, coaxial cable and twisted pair wires

15   to transmit, process and receive single or unified media data streams. Parallel general purpose media processors are disposed throughout the network in a distributed virtual manner to allow for multi-processor operations and sharing of resources through the network. A method for receiving, processing and transmitting media data streams over the communications fabric is also provided.

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